

FREQUENCIES VHF, UHF, SHF NEWSLETTER NZ

This newsletter is compiled by Kevin Murphy ZL1UJG to promote operational and construction activity on the VHF, UHF and SHF Amateur Radio allocations in New Zealand (and overseas).

Newsletter Articles may be sent via email to rfman@extra.co.nz

Post to K Murphy, 8 Tamar Place, Hamilton, New Zealand.

Ph 07 8470041

ISSUE 17, JUNE 2005

CONTENTS VHF Scene

MAY/JUNE VHF SCENE, 2005

Please credit NZART/Break In/VHF Scene if using material in another publication



Microwave

Two of the most active stations on Microwave bands, Brian, ZL1AVZ and Steve, ZL1TPH have been hard at work on the 47 GHz band. Over the previous few months both stations have constructed portable stations using DB6NT equipment comprising 47 GHz transverters (TX power ~ 0.4 mW) and associated local oscillators. In April they completed their stations and tested their equipment over about 1 km. They decided to try to extend the distance. On the 1st May, Brian set up at Mt Eden, while Steve had his portable station at Moir's Hill. Brian used a 45 cm dish while Steve had a 30cm dish. The signals traversed through the Auckland sky to give 52 to 55 signals at

both ends. Contacts were made on SSB however some drift was apparent and Steve had to escort Brian up the band. (the local oscillator was multiplied of the order of 480 X, from near 100 MHz to reach final frequency !!)

Steve and Brian are looking to extend the distance over coming months and CW contacts should improve signal margin.

Looks like a ZL record contact on 47 GHz. Well done both of you. A point to note is that the VK record on 47 GHz is of similar distance.

Another person active on the microwave bands is Dave, ZL1AKW in Tauranga. Over the last months, Dave has constructed a permanent station on 1296 MHz using a Swedish transverter, 44 element loop Yagi and a IC202 prime mover. He hears the Hamilton 1296.256 MHz Beacon at excellent strength (579) and is looking for contacts. The scribe tried to pass signals across the Kaimai ranges to Dave, however the less favorable path, due to height disadvantage, weakened signals considerably. Contact Dave at dave-tts@clear.net.nz to arrange contacts. Dave is also looking at the 2424 MHz band in the future.

Simon has generated a low level signal (~ 15mW), from a transverter made from surplus modules. It made the grade to Harry ZL1BK over a 2.6 km water path. Simon is looking to increase power over the next few months.

6 metres

Bob ZL3NE/1 provided an interesting 6m report. On the evening of April 6th stations from JA1, 2, 3, 4 and 6 were worked. At 1830 local time on the 14th April, more JA1 and 2 stations were worked, with signals up to S9. All contacts are on CW.. The band appeared to be open for quite some time according to JA beacons heard but there was a lack of stations to work, surprisingly.

Bob, is located in West Auckland, however the Waitakares limits his 2m activities.

Over Christmas, activity peaked on the 23rd, when Bob worked VK2 through to VK7. The signals were over S9 plus 20 dB for most of the day. Bob reports that the signals from VK6 were in for 3 hours and the best he has heard them for over 20 years. The VK5's and VK7's are usually quite weak from his location, where the Waitakares rise up within 300 metres!! The signals worked were via the E layer, and were associated with lightning on the storm front, which was moving down the Tasman.

Bob reported that signals at those high levels and extended periods were very unusual for him. A second area of lightning along the East coast of VK, was responsible for two hops to VK5, while some tropo (due to a very good anticyclone) was responsible for signals to VK6. This similar to the propagation that ZL3's get over the Indian Ocean F2 area.(An excellent report Bob, with lots of interesting info)

Beacons and Repeaters

The Klondyke 6m repeater is now active with ZL1ABS and ZL1WTT reporting contacts ZL3TMB also advises that the Branch 05 6 metre is operational from Cass Peak on 53.850 MHz with a negative split. Note the ZL band ends at 53 MHz so one can listen to the output frequency only.

ZL3KB advises that the Branch 05 ZL3VHF and ZL3UHF Beacons are operational on 144.285 and 432.285 MHz, with 10 watts to vertical antennas. Keying is CW.

Meteor Scatter

Bob, ZL3TY, Greymouth and Scott, ZL1KB in Auckland are experimenting with the FSK441A digital mode over this path. They have had several skeds over weekends in April and May and are looking at random meteors to reflect their signals. Although they only have partial decodes at present, it is expected that a full contact will result soon. Bob runs an array of 4 by 12 element Yagi antennas and 500 watts, however Scott's setup is a single Yagi and 80 to 100 watt amplifier. A test on 7th May between Bob ZL3TY and David ZL1BT resulted in a QSO on 144.230 MHz over 698 km. David was running a 9 element Yagi and 160 watts. The 1st period (@ 2005z) gave a spectacular burn of over 10 secs, while 2 pings (80 ms duration each) at 2031z and 2038z enabled exchange of reports and 73's. (Rxed by Bob ZL3TY) I hope to hear of further success and from others interested in Meteor Scatter. With these digital modes, stations running moderate powers can have good success.

EME

David, ZL1BT has had some fun on 144 MHz EME. On the 3rd weekend of April, David had his first EME contact, contacting Sam, RN6BN in Russia. David was using about 150 watts and his Plumber "Special" (as previously seen in the column). David used the JT65B digital mode on 144.137 MHz. Sam runs close to 1 kW and an impressive array. David's signals in Russia were about 12 dB below the signal level that he received in NZ from Sam. Using digital modes such as JT65B, the threshold at which signals may be decoded is much less than the noise level received in SSB bandwidths, or even CW bandwidths. (David's signals were -26 dB below the noise in a SSB bandwidth and Sam's signals were -14 dB)

David has been on a logger www.chris.org/cgi-bin/jt65eme where many EME skeds are made. He also uses the VK/ZL logger www.vklogger.com/vhflogger/set.php run by Adam VK4CP. Assistance and guidance by Leigh, VK2KRR and Hans DL8GP helped steer David through the contact process. David comments that this was one of the best moments for him in Amateur radio. There are links to the Hepburn charts via the VHF logger and these help predict favorable conditions for ZL/VK DX. As well as trying to work VK stations, David is also interested in working ZL's

He also is looking at improving the construction and length of this Plumber Special antenna, and the last 18 months of 2m DX has increased his enthusiasm for VHF DXing. He has a FT847 transceiver connected to a linear amplifier, and antenna ready for those DX contacts. (That's great news on working the Russian, and hope to hear more news on other EME stations worked.)

April 16, 2005 - Announcement of the first QSOs via the moon on 47 GHz.

The team of RW3BP, AD6FP, W5LUA, and VE4MA would like to announce that the first 47 GHz contacts via the moon have been completed. RW3BP heard the first lunar echoes on 47 GHz back in August of 2004. At that time he was heard by AD6FP, W5LUA, VE4MA and VE7CLD. Since the receipt of the first 47 GHz echoes via the moon, numerous tests between RW3BP and AD6FP led to improvements by RW3BP allowing him to copy calls from the lower power signal of AD6FP in January of 2005.

As of April 16, 2005 the team of AD6FP, W5LUA and VE4MA have each completed a CW QSO via the moon with RW3BP.

The station at RW3BP consists of a 2.4M offset fed dish and 100 plus watts while the station at AD6FP consists of a 1.8M offset fed dish and 30 watts. At W5LUA and VE4MA 2.4M offset fed dishes and 30 watt TWTs were used. Noise figures of all stations are in the 3.5 to 4.7 dB range. Since the doppler shift can be as much as 100 + kHz at 47 GHz, one must continuously adjust the receive frequency to keep the station centered in the passband. Precision frequency control was obtained by using GPS controlled, Rubidium locked, or TV sync controlled phase locked local oscillators. Various techniques were in use to keep the Doppler shifted frequency in the passband of the receivers.

Records

There is a new 6m world record on the JT65A mode with ZL3NW working MOBCG in England. The contact took place on 24/01/2005 and the distance between stations was 19001 km.

Latest records may be seen at www.nzart.org.nz/nzart/vhf/index.html

New rules for DX records may also be seen at www.nzart.org.nz/nzart/vhf

From John ZL2TWS

Conventions

The 2005 VHF Convention was held over Easter weekend, at Johnsonville, Wellington. The event was well attended and there were good presentations. The Wellington VHF Group trading table did well and there were live demonstrations of Satellites via AO51. The Saturday evening dinner was well attended. The April 2005 Issue of Q-Bit has good coverage of the event. The May/June issue of NZART Break In magazine also has a writeup. Many thanks to the organisers and participants of the event.

GIPSTECH 2005 ANNOUNCEMENT

Anyone who might be considering being in VK in early July might look at being in VK3. The WIA Eastern Zone Amateur Radio Club (Inc) is pleased to announce GippsTech 2005. This year the event will be held on Saturday July 9 and Sunday July 10. This event has a well-recognised reputation as the premier technical conference in VK considering techniques applicable in the VHF, UHF and microwave bands, especially for weak-signal contacts. In addition to the Conference, a Partner's Tour will be conducted, together with an informal social gathering for dinner on Friday and a Conference Dinner on Saturday.

CALL FOR PAPERS

Amateurs (& others with material to contribute) are invited to submit titles and outlines for topics to be presented at GippsTech 2005. Presentation slots can be brief (5 -10 Minutes) through to 1 hour. Anything longer - you will need to justify!!

Presentations can be formal or informal, or display. We use a lecture theatre for the formal (& semi-formal) presentations. Displays are open during coffee/tea breaks and after lunch. Potential presenters are welcome to contact me direct for further information or to suggest a topic.

The conference is held in Churchill about 170km east of Melbourne.

Further details can be found at the Eastern Zone Amateur Radio Club web site at:

<http://www.qsl.net/vk3bez/>

Further details will become available on the website in the coming weeks. An on-line registration form will also appear as soon as final costs are determined.

Topics scheduled to date:

Calculating Troposcatter Losses. Rex VK7MO

Lightning - Effects of a Near Strike. Guy VK2KU

More Ideas and Measurements of Elevated Ducts. Andrew VK3KAQ

Noise figure measurements over the years. Chris VK5MC

High stability xtal ovens based on zero temperature gradient. Rex VK7MO

Modification of the FT847 to eliminate frequency drift. Joe VK7JG.

(From Peter, VK3KAI Chair, Organising Committee)

vk3kai@qsl.net

Thanks for the activity reports from a number of stations.

I am looking for input for the VHF Scene column. Please send ASAP Cutoff date 10 July, 2005

Input for the column may be sent to Kevin ZL1UJG at rfman@extra.co.nz

END OF VHF SCENE